UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

ENTROPIC COMMUNICATIONS, LLC,

Plaintiff

v.

CHARTER COMMUNICATIONS, INC.,

Defendant.

Civil Action No. 2:22-cv-00125-JRG

JURY TRIAL DEMANDED

CHARTER'S RESPONSIVE CLAIM CONSTRUCTION BRIEF

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Exhibit 1	Charter's Technology Tutorial Slides and Script, submitted to the Court on May 9, 2023
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Exhibit 4	Data-Over-Cable Service Interface Specifications DOCSIS® 3.1 – MAC and Upper Layer Protocols Interface Specification – CM-SP-MULPIv3.1-I03-140610, issued June 10, 2014 (excerpts), bearing bates number CHARTER_ENTROPIC00101872
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TABLE OF ABBREVIATIONS AND ACRONYMS

Charter	Charter Communications, Inc.
Entropic	Entropic Communications, LLC
EBr.	Entropic's Opening *Markman* Brief, Dkt. 97
CEx.	Exhibit to the Declaration of Albert J. Boardman in Support of Charter's Responsive Claim Construction Brief
EEx.	Exhibit to Entropic's Opening *Markman* Brief, Dkt. 97
Charter TT	Charter's Technology Tutorial Slides/Script, CEx. 1
'775 or '775 Patent	U.S. Patent No. 8,223,775, EEx. 1
'008 or '008 Patent	U.S. Patent No. 8,792,008, EEx. 2
'826 or '826 Patent	U.S. Patent No. 9,825,826, EEx. 3
'690 or '690 Patent	U.S. Patent No. 8,284,690, EEx. 4
'362 or '362 Patent	U.S. Patent No. 9,210,362, EEx. 5
'682 or '682 Patent	U.S. Patent No. 10,135,682, EEx. 6
Kramer	Rebuttal Expert Declaration of Dr. Richard A. Kramer Regarding Claim Construction, EEx. 7
Almeroth	Declaration of Dr. Kevin Almeroth Regarding Claim Construction and Accompanying Appendices A-I, EEx. 8
DOCSIS	Data-Over-Cable Service Interface Specifications

All emphasis in quotations herein is added, unless indicated otherwise.

I. INTRODUCTION

The specifications of the asserted patents disclose very specific structures and methods. In some cases, the claims hue closely to the disclosures, and those claims should be construed accordingly. In other cases, the claims deviate wildly from the disclosures in ways that render them unintelligible. Those claims are indefinite. In all cases, Charter's constructions are grounded in the intrinsic record and the plain meanings of claim terms which actually have plain meanings. Those constructions should be adopted. Certainly, Entropic's proposal that the Court construe nothing, and that the jurors be left to fend for themselves on all of these issues, should be rejected.

II. The '775 Patent

A. The Specification of the '775 Patent (Charter TT 78-104)

Entropic agrees that the alleged invention of the '775 Patent is an "architecture for cable modems." (EBr. at 1.) An "architecture" of a computerized device "refers to how the device's components are connected to, and operate with, each other." (Almeroth ¶32.) And so it is with the '775 Patent, where the disclosed cable modem architecture has specifically enumerated physical components which operate and interoperate in specifically enumerated ways.

Fig. 1 depicts the disclosed architecture as embodied in a cable modem "100." ('775 2:49-50, 4:10.) One aspect of the architecture is the inclusion of a so-called "cable modem engine" ("CME"). The phrase "cable modem engine" does not have a plain meaning. (Almeroth ¶34.) According to the specification, the CME "performs all cable modem functions" and "implements the entire DOCSIS cable modem functionality." ('775 Abstract, 2:55-56; Almeroth ¶36.)

The CME comprises three discrete physical components among which the CME functions are distributed. ('775 2:5-11, Fig 1; Almeroth ¶¶42-51):

> 1) **"DOCSIS 2.0 PHY":** This device sends and receives voice and data over the cable network. ('775 2:61-63.)

> 2) **"DOCSIS MAC processor":** The term "DOCSIS MAC processor" does not have a plain meaning. According to the specification, the DOCSIS MAC processor performs some (but not all) of the DOCSIS MAC functions of cable modem 100 ("CM 100"). ('775 3:1-7.)
>
> 3) **"DOCSIS controller."**. The term "DOCSIS controller" does not have a plain meaning either. According to the specification, the DOCSIS controller performs a host of functions itemized at '775 3:21-48. Among those functions are a number of DOCSIS MAC functions, including DOCSIS "MAC management message (MMM) processing" ('775 3:27-29), "MAC address learning" ('775 3:30), and "voice MAC driver" functions ('775 3:46).

Thus, although the CME includes a "DOCSIS MAC processor," that processor does not perform all the MAC functions. The DOCSIS controller also performs DOCSIS MAC functions.

In addition to the CME, the cable modem also includes a so-called data networking engine ("DNE"). The term "data networking engine" does not have a plain meaning, but according to the specification it "implement[s] all data networking processing and home networking applications." ('775 2:11-13; Almeroth ¶¶34, 37.) According to the specification, it is important that the DNE and CME be "completely partitioned." ('775 1:66-2:4, 2:13-15, 2:24-27, 3:53-58, 4:13-16; Almeroth ¶38.) However, the specification does not explain what "complete" partitioning means or in what way the two are completely partitioned. (Almeroth ¶39.)

1. Distribution of Functions Among Three Processors (Charter TT 94-98)

Cable modem 100 contains three different ARM processors (a specific type of processor known in the art (Almeroth ¶40)). The objectives of the invention are said to be achieved by having "the processing-intensive functions of the cable modem and data networking rationally distributed among three different processors: DOCSIS MAC processor **114** (ARM #2); DOCSIS controller **116** (ARM #1); and data networking engine **120** (ARM #3)." ('775 4:44-49.) Each of these three components is labeled with its associated ARM processor number in Fig 1.

2. Data Flow Within Cable Modem 100 (Charter TT 99-104)

Another important aspect of the architecture is the way data flows through the components of the cable modem. Downstream data and downstream voice are received into the cable modem at the DOCSIS 2.0 PHY of the CME. ('775 2:61-63.) The DOCSIS 2.0 PHY then sends the downstream data and voice to the DOCSIS MAC processor. ('775 3:7-9.) However, although the DOCSIS MAC Processor then sends the downstream voice to the DOCISIS controller ('775 3:9-11), it does not send downstream data to the DOCSIS controller. Instead, as represented by line 118 in Fig. 1, the DOCSIS MAC processor sends downstream data directly to the DNE, "bypassing" the DOCSIS controller completely. ('775 3:11-16 (hereinafter, the "DOCSIS Controller Bypass Feature.").) This feature is said to "further boost downstream throughput" above and beyond that afforded by the distribution of functions among three different processors alone. ('775 4:49-55.) This data flow is further explained at Almeroth ¶¶52-56.

3. Prosecution History of the '775 Patent

During prosecution, the patent examiner repeatedly rejected the claims – including the predecessor claim to '775 claim 18 – as being anticipated by US Patent Application Publication No. 2001/0039600 to Brooks et al. ("Brooks"). As relevant here, the examiner found that Brooks teaches a CME and DNE whereby the "cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine." (Almeroth App. G, at ENTROPIC_CHARTER_0000092, -0000096.)

Brooks disclosed two processors, one of which the examiner said comprised a DNE and the other of which the examiner said was part of a CME. (Almeroth ¶59; *id.*, App. G, at ENTROPIC_CHARTER_0000123.) To overcome the rejection, the applicants argued that the CME and DNE in Brooks were not "completely partitioned" because there was "connecting circuitry" between the two processors:

> because available connecting circuitry would be shared by both the one processor and the other processor, the asserted cable modem engine and home networking engine could not be completely partitioned as claimed.

(*Id.* at ENTROPIC_CHARTER_0000132.) The applicants further argued that the CME and DNE in Brooks cannot be completely partitioned:

> because the CMAC/CPHY block (114, 118, 224 and 228) communicates with both the processors 102 and 104 *by sharing the same data paths and sharing the same direct memory access controller*. (See peripheral bus 112 - bridge 110 - **system bus 108** in Fig. 1 and APB 214- DMA Controller/ASB-APB Bridge 212- **ASB 210** in Fig. 2, and paragraphs 0034 and 0035).

(*Id.*, at ENTROPIC_CHARTER_0000133.)

The Brooks "system bus 108" and "ASB 210," which the applicants pointed to as demonstrating that the Brooks CME and DNE are not "completely partitioned," is the data bus between the two processors. Entropic's expert Dr. Kramer agrees. (Kramer ¶114.)[1] In view of these arguments, the examiner withdrew his rejection of the claims over the Brooks reference. (Almeroth ¶63; *id.*, App. G, at ENTROPIC_CHARTER_0000143 – 0000153.)

The prosecution history is further explained at Almeroth ¶¶57-63.

B. Construction of '775 Patent Claim Terms

Claim Term	Entropic's Construction	Charter's Construction
"a data networking engine implemented in a first circuit that includes at least one processor…" (cl. 18)	Plain and ordinary meaning.	Indefinite.
"a cable modem engine implemented in a second circuit that includes at least one processor, the second circuit being separate from the first circuit…" (cl. 18)	Plain and ordinary meaning.	Indefinite.

[1] Dr. Kramer also says that the applicants did not rely on "system bus 108" and "ASB 210" in distinguishing Brooks. In view of the above excerpted passage from the prosecution history, he is clearly mistaken about that.

'775 claim 18 requires that an infringing device contain both a DNE and a CME. But that is not all. The claim further requires that the DNE be "implemented in a first circuit that includes at least one processor…" and that the CME be "implemented in a second circuit that includes at least one processor…" Moreover, the second circuit in which the CME is implemented must be "separate from" the first circuit in which the DNE is implemented. ('775 7:34-35, 8:5-7.)

The specification does not disclose any of this. There is no disclosure of a DNE or CME implemented in any circuit, much less two circuits which are "separate" from one another. Indeed, the word "circuit" does not even appear in the specification. The specification therefore provides no guidance whatsoever as to what these "circuit" limitations mean. (Almeroth ¶64.)

Of course, the word "circuit" does have a plain meaning. The dictionary definition of circuit (the only definition in the record) is as follows:

> 1. Any path that can carry electrical current. 2. A combination of electrical components interconnected to perform a particular task. At one level, a computer consists of a single circuit; at another, it consists of hundreds of interconnected circuits.

(*Id.* ¶65; *id.*, App. C, at 99.) Pursuant to definition # 1, processors such as the disclosed ARM processors would each comprise billions of circuits because every processor contains billions of electrical paths. (Almeroth ¶71.) Pursuant to this definition, the claimed "circuits" could not "include at least one processor" as required by claim 18: processors are made up of electrical paths, not vice-versa. Claim 18 would therefore be indefinite.

According to definition # 2, the boundaries of a circuit – and the number of circuits in a device – depends entirely on a person's perspective. Any combination of electrical components which perform a task can be considered a circuit. Thus, as the definition explains, "at one level" an entire computerized device constitutes one circuit for performing the tasks it was built to perform. At this "level," disclosed cable modem 100 is one circuit. Thus, hypothetically, if cable

modem 100 were an accused device, it would not infringe claim 18 because its DNE and CME would not be implemented in two separate circuits. (*Id.* ¶¶67-68.)

Entropic's own reading of the patent confirms that cable modem 100 is a single circuit. According to Entropic, cable modem 100 is a "System-on-Chip" or "SOC" (EBr. at 7-8.) According to the dictionary definition of SOC, an SOC is *one circuit*. (CEx. 3 at 636.) Entropic's expert Dr. Kramer agrees that an SOC can be considered one circuit. (CEx. 2 at 127:13-22.)

Entropic's response appears to be that it is Entropic's prerogative to employ whichever "level" of circuit suits its infringement read. If cable modem 100 was an accused device, it is supposedly Entropic's prerogative not to employ the "level" of circuit at which the entire device is one circuit because that would not result in infringement. Instead, Entropic contends, it is permitted to designate the single processor which constitutes the DNE as the first circuit. And it is further permitted to designate, collectively, the two processors of the CME and its other components as one, singular second circuit.[2] That is not the law.

As the Federal Circuit explained, prior to the Supreme Court's decision in *Nautilus, Inc v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014), if multiple methods existed to determine the scope of a claim limitation "leading to different results without guidance in the patent or the prosecution history as to which method should be used," the claim could still be definite "if someone skilled in the art could arrive at a method and practice that method." Post-*Nautilus*, that is no longer sufficient, as it does not satisfy the *Nautilus* "reasonable certainty" test. *Dow Chemical Co. v. Nova Chemicals Corp. (Canada)*, 803 F.3d 620, 634 (Fed. Cir. 2015).

[2] If Entropic had another claim that was the opposite of claim 18 and required that the DNE and CME be implemented in the *same* circuit, Entropic would simply employ the level of circuit whereby the entire cable modem 100 is one circuit. It would then allege that cable modem 100 infringes that opposite claim as well.

The disputed limitation in *Dow* was "a slope of strain hardening coefficient greater than or equal to 1.3" *Id.* at 631. The slope could be measured with four different methods, whereby "the method chosen for calculating the slope of strain hardening could affect whether or not a given product infringes the claims." *Id.* at 634. "Neither the patent claims nor the specification here discusses the four methods or provide[d] any guidance as to which method should be used…" *Id.*

Prior to *Nautilus*, the Federal Circuit had determined that the claim was not indefinite because "the mere fact that the slope may be measured in more than one way does not make the claims of the patent invalid." *Id.* Due to a procedural anomaly in the case, however, the Federal Circuit had the opportunity to decide that exact same issue in the exact same case post-*Nautilus*. And the decision came out differently. Because the intrinsic evidence did not reveal which slope measurement method to employ, the claim was indefinite. *Id.* at 635. The plaintiff did not have the prerogative to pick whichever slope measurement method resulted in a "coefficient greater than or equal to 1.3" when applied to the accused product.

Other post-*Nautilus* Federal Circuit authority is consistent. In *Teva Pharmaceuticals USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335 (Fed. Cir. 2015), for example, the claim limitation at issue required a substance to have "a molecular weight of about 5 to 9 kilodaltons." 789 F.3d at 1338. But there were three relevant measures for molecular weight, each of which typically resulted in a different value. *Id.* Because the intrinsic record did not teach which measurement to use, the claim was indefinite. Again, the patentee was not permitted to select whichever measurement method satisfied the "about 5 to 9 kilodaltons" limitation when applied to the accused product.

Entropic suggests that because the specification describes the DNE and CME as "engines" which perform their respective "functions," those skilled in the art would equate them with the two claimed circuits. (EBr. at 7.) The one simply does not follow from the other. Entropic ignores

the fact that the specification also describes the "cable modem 100" as performing functions. By Entropic's logic, this means the entire cable modem is one circuit. The specification also describes the DOCSIS MAC processor and DOCSIS controller as performing their respective "functions." Yet, with respect to those devices, Entropic contends that they are both in the same single circuit. The disclosure of two "engines" performing functions is irrelevant.

Finally, Entropic relies on cases which reject contentions that "circuit" is a means plus function limitation or that claimed circuits should be construed as performing specific functions. (EBr. at 7-8.) Those cases are irrelevant. None of them address an undisclosed claim limitation requiring that two engines in the same computerized device be implemented in "separate" circuits.

Claim Term	Entropic's Construction	Charter's Construction
"data bus" (cl. 18)	Plain and ordinary meaning.	Indefinite.
"wherein the cable modem functions performed by the cable modem engine are completely partitioned from the home networking functions performed by the data networking engine" (cl. 18)	Plain and ordinary meaning.	The cable modem engine and the data networking engine do not share any connecting circuity, data paths, or memory devices.

Claim 18 requires (i) a "data bus" that connects the DNE and CME, "wherein" (ii) the DNE and CME are "completely partitioned." ('775 8:23-27.) The "wherein" clause recites the precise limitation the applicants told the Patent Office was missing from the *Brook*s reference because Brooks had a CME and DNE which shared connecting circuity/data paths (*i.e.* the "data bus") and memory devices (see Section II.A.3 *supra*). Thus, the "data bus" limitation is irreconcilable with the "completely partitioned" limitation, and claim 18 is therefore indefinite. (Almeroth ¶79.)

Claim Term	Entropic's Construction	Charter's Construction
"DOCSIS functions" (cl. 19)	Plain and ordinary meaning.	This limitation does not change the scope of claim 18.

According to claim 19, all DOCSIS functions are localized in the CME. However, as explained in Section II.A above, the specification explains that the *sine qua non* of a CME is that it "performs all cable modem functions" including "the entire DOCSIS cable modem functionality." Accordingly, claim 19 is redundant and does not further limit the scope of claim 18. Otherwise, the term "cable modem engine" is indefinite. It is a phrase coined by the inventors. If it does not refer to the components of a cable modem that perform all the cable modem functions, then there is no way to know what it is. "Claim differentiation is 'not a hard and fast rule,' but rather a presumption that will be overcome when the specification or prosecution history dictates a contrary construction." *GPNE Corp. v. Apple Inc.*, 830 F.3d 1365, 1371 (Fed. Cir. 2016).

Claim Term	**Entropic's Construction**	**Charter's Construction**
"DOCSIS MAC processor" (cl. 18)	Plain and ordinary meaning.	"DOCSIS MAC processor" is the DOCSIS MAC processor as described in the patent specification (*see, e.g.*, '775 Patent at 3:1-20; 4:41-57; *id.* at FIGs. 1 & 2). Otherwise indefinite.
"DOCSIS controller" (cl. 18)	Plain and ordinary meaning.	"DOCSIS controller" is the DOCSIS controller as described in the patent specification (*see, e.g.*, '775 Patent at 3:21-48; 4:41-57; *id.* at FIGs. 1 & 2). Otherwise indefinite.

Neither the phrase "DOCSIS MAC processor" nor "DOCSIS controller" has a plain meaning – there are no dictionary definitions to look to for a construction. According to Entropic, however, dictionary definitions are unnecessary because a DOCSIS MAC processor simply performs DOCSIS MAC functions and a DOCSIS controller simply controls DOCSIS functions. (EBr. at 14.) While simplistic, it cannot possibly be correct. Such a construction would either (i)

contradict the specification (the only source to look to for a construction); or (ii) make it impossible to distinguish a DOCSIS MAC processor from a DOCSIS controller.

If, for example, the DOCSIS MAC processor were construed as the component of the cable modem which performs *all* DOCSIS MAC functions, that would contradict the specification. As explained in Section II.A above, the disclosed DOCSIS MAC processor does *not* perform all DOCSIS MAC functions of cable modem 100. The DOCSIS controller also performs a number of DOCSIS MAC functions, such as DOCSIS "MAC management message (MMM) processing" ('775 3:27-29), "MAC address learning" (*id.* 3:30), and "voice MAC driver" functions (*id.* 3:46).

On the other hand, if the DOCSIS MAC processor need only perform *some* DOCSIS MAC functions and the DOCSIS controller need only control *some* DOCSIS functions, then there is no way to distinguish between the two. The disclosed DOCSIS controller would also be a DOCSIS MAC processor because it performs DOCSIS MAC functions. At the same time, the disclosed DOCISIS MAC processor would also be a DOCSIS controller because it controls the DOCSIS MAC functions it performs. Such a construction would render claim 18 indefinite. The claim requires both a DOCSIS MAC processor and a separate DOCSIS controller, and there would be no way to distinguish between the two. (Almeroth ¶¶48, 51, 76.)

Moreover, claim 18 requires the DOCSIS Controller Bypass Feature whereby downstream data packets are sent by the DOCSIS MAC processor directly to the DNE "without the involvement of the DOCSIS controller." ('775 8:18-22.) If every DOCSIS MAC processor is a DOCSIS controller then it would be impossible for a DOCSIS MAC processor to do anything "without the involvement of the DOCSIS controller." Claim 18 would be indefinite for this additional reason. (Almeroth ¶77.)

The only construction of DOCSIS MAC processor and DOCSIS controller that both comports with the specification and provides a basis for distinguishing between the two is a construction whereby each refers to the corresponding device described in the specification.

III. The '008 and '826 Patents

A. The Specification of the '008 and '826 Patents (Charter TT 21-53)

The '008 and '826 Patents disclose a receiver at a customer premises for receiving, processing and monitoring an incoming signal. ('008 3:5-12.)[3] The received signal can contain solely television channels, solely DOCSIS data channels, or both. (*Id.* 3:12-15.) The architecture of the receiver is depicted in Fig. 1B. (*Id.* 3:5-7.)

The signal is received into an "RF Receive Front end" 158 which converts the signal from analog into digital form. (*Id.* 3:11-12.) After the signal is digitized it is provided to a channelizer device 152. The channelizer selects which portion of the digitized signal to output to a monitoring device 154 and which to output to a data processing device 156. (*Id.* 3:20-23, 4:28-44.) In claim 1, the channelizer provides the different outputs to the monitoring and data processing devices "concurrently." (*Id.* 7:30-32.) The monitoring device and data processing device are in a "parallel arrangement" and "concurrently process[]" the signals they receive. (*Id.* 4:7-10, 4:45-50.)

The function of the data processing device is to recover the data in the television channels it receives. (*Id.* 3:61-64) The function of the monitoring device is to "measure/determine characteristics [of the signal] such as, for example, signal power level vs. frequency…" (*Id.* 3:33-36.) The monitoring device can then send the "measured/determined characteristic" back to the cable headend. (*Id.* 3:55-57.) Alternatively, the monitoring device can analyze the measured

[3] The specifications of the '008 and '826 Patents are identical. All specification citations herein are to the '008 Patent.

characteristic and send that analysis back to the headend. The disclosed example of this analysis is determining whether the measured characteristic is "outside acceptable bounds." (*Id.* 3:48-57.)

B. Construction of '008 and '826 Patent Claim Terms

Claim Term	Entropic's Construction	Charter's Construction
"network management messages" ('826 cl. 1)	Plain and ordinary meaning.	Messages which report on the status of the network based on an analysis of the measured characteristic.

As explained in the preceding section, the specification discloses two types of messages which the monitoring device can send. The first contains the measured/determined characteristic itself. Claim 1 of the '008 Patent recites this message type ("report said *determined characteristic* to a source of said received signal"). ('008 7:23-24.)

The second message type contains the results of an analysis the monitoring device performs on the measured characteristic. Claim 1 of the '826 Patent is directed to this message type ("measur[ing] a characteristic" and then controlling transmission of network management messages "*wherein said measured characteristic is different than said network management messages*." ('826 7:48-55)). Thus, Entropic is correct that Charter is "attempting to construe [network management messages] to exclude ... 'conveying measured/determined characteristics.'" (EBr. at 15.) Charter is attempting this because the claim expressly excludes this.

Entropic goes on to say that the claim requirement that the network management messages be "based on" the measured characteristic counsels against any construction. (*Id.* at 15-16.) That statement masks the claim scope Entropic intends to argue to the jury. Entropic contends that the Charter set-top boxes return one thing to a headend – one measured characteristic. In its infringement contentions, however, it alleges that this one capability satisfies both the '008 Patent requirement that the measured characteristic itself be returned *and* the '826 Patent requirement that something different than the measured characteristic be returned. It justifies this seeming

contradiction by contending, for purposes of the '826 Patent, that a message containing the measured characteristic is "different than" and "based on" the measured characteristic alone. That improper construction cannot be presented to the jury.

In view of the specification, Charter contends that network management messages which are "different than" the measured characteristic refers to the only other disclosed option – messages which report on the status of the network based on an analysis of the measured characteristic of the signal (*e.g.,* signal "outside acceptable bounds"). If the Court disagrees, however, it should at least construe "network management messages" which are "different than the measured characteristic" of the received signal to mean that the claimed messages convey *characteristics of the received signal* which are different than the measured characteristic. A message is not "different than" the measured characteristic simply because the measured characteristic is packaged into a message.

Claim Term	Entropic's Construction	Charter's Construction
"operable to" ('008 cl. 1)	Plain and ordinary meaning.	Configured to.

The Court should construe a device "operable to" to perform a function to mean the device is "configured to" perform that function. Otherwise, the jury might misinterpret "operable to" to cover a device even if it cannot perform the function, so long as it is "capable of" doing so if it is properly modified. *TQ Delta, LLC v. CommScope Holding Co., Inc.*, No. 2:21-CV-310-JRG, 2022 WL 2071073, at *9-*10 (E.D. Tex. June 8, 2022).

Claim Term	Entropic's Construction	Charter's Construction
"digitize a received signal spanning an entire television spectrum comprising a plurality of television channels" ('008 cl. 1)	Plain and ordinary meaning.	The "received signal" contains only television channels.

As explained in Section III.A above, the specification discloses embodiments in which the received signal contains only television channels, only data channels, and both television and data channels. ('008 3:12-15.) '008 Patent claim 1, with its limitation that the received signal "span[]" an entire television spectrum, is directed to the television channel-only embodiment. This contrasts with claim 1 of the '826 Patent, which states that the received signal comprises "one or both of television and data channels." ('826 7:38-40.)

Entropic asserts that this claim term should be construed pursuant to its plain and ordinary meaning. Charter's construction *is* that plain and ordinary meaning. "Span" is a plain English word which means the full extent of something from end to end (*e.g.*, "wing span," "life span," "span of a bridge"). Thus, the full extent of the received signal in '008 Patent claim 1 is the television spectrum, not other parts of the spectrum containing data channels. The "comprising" preamble does not change this: "The usage 'comprising' means that additional components may be present in the device, but does not change the elements that are stated in the claim." *Outside the Box Innovations, LLC v. Travel Caddy, Inc.*, 695 F.3d 1285, 1305 (Fed. Cir. 2012).

Claim Term	Entropic's Construction	Charter's Construction
"signal monitor," "data processor," "channelizer" ('008 cl. 1)	Plain and ordinary meaning.	Three separate pieces of hardware, configured to perform the functions the claim ascribes to the signal monitor, data processor, and channelizer, respectively.

'008 claim 1 sets forth three distinct elements: a "signal monitor," a "data processor" and a "channelizer." Yet, Entropic contends that there need not be any "separateness" between the three, and that they can all refer to the same physical device. (EBr. at 17.) Entropic provides no support for its contention that this is the "plain and ordinary meaning" of these terms, or any facts to overcome the presumption that each of these must be a distinct physical component. "Where a

claim lists elements separately, 'the clear implication of the claim language' is that those elements are 'distinct component[s]' of the patented invention." *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010)); *Kyocera Senco Indus. Tools Inc. v. Int'l Trade Comm'n*, 22 F.4th 1369, 1382 (Fed. Cir. 2022) (components listed separately in a claim gives rise to "a presumption that those components are distinct.").

Nor could Entropic possibly overcome this presumption, as neither the claims nor the specification make any sense unless each of the three is a separate device. For example, both the claims and the specification require the channelizer to provide "outputs" to the signal monitor and data processor. ('008 7:27-30, 3:20-23.) There would be no "outputs" from a channelizer to either the signal monitor or data processor if all three were the same device. Moreover, the claim requires that the channelizer provide "concurrent outputs" to two different places, while the specification teaches that the monitoring device and data processing device are in a "parallel arrangement" and "concurrently process[]" the signals they receive. (*Id.*, 7:27-32; 4:7-10; 4:45-50.) None of this would be possible unless there were three distinct devices.

Because it is not possible to explain the claims or the disclosure without assuming the "signal monitor," "data processor" and "channelizer" are separate physical components, Entropic does not even try. For purposes of explaining the alleged invention, Entropic assumes they are separate physical devices, even referring to the first two as the "monitoring device" and "data processing device." (EBr. at 3.) It is only later in its brief, outside the context of the claimed and disclosed operation of these components, that it contends all three can be one device.

Based on the following one sentence in the disclosure, Entropic alleges that the specification discloses an alternative embodiment whereby the channelizer, data processor and signal monitor are all one device: "[t]he various modules of the subassembly 174 may reside in …

one or more integrated circuits." (*Id.* at 17.) That is a misreading. What this sentence means is that each individual module can be one or more integrated circuits, not that all of the different modules can be one device. Entropic' s reading renders the sentence irreconcilable with the claim language and all of the other disclosure in the specification as identified above. Moreover, even if the specification did disclose this alternative embodiment (it does not), this still would not overcome the presumption that there are three separate devices. This would mean only that the alternative embodiment was not claimed. *Kyocera*, 22 F.4th at 1382 (internal citation omitted).

IV. The '690 Patent

A. The Specification of the '690 Patent (Charter TT 105-120)

As its title says, the '690 Patent is directed to a "receiver determined probe." Prior to the alleged invention, it was common for nodes on a network to receive probes from other nodes. ('690 1:48-53.) "Probe" has a well understood meaning in the art. As explained in the DOCSIS specification, a probe contains a pattern known to the receiver of the probe (called the "probe receiver" or "receiving node") before the probe is received. By comparing the probe that it received with the known pattern, the probe receiver can determine characteristics of the channel on which the probe was received. (CEx. 4 at CHARTER_ENTROPIC00101928.) This is exactly how the '690 Patent specification explains what probes are and how they are used:

> …probes are typically well defined. Accordingly, the receiving node knows before reception what reference signal [i.e. known pattern] was transmitted. By comparing the reference probe with the actual received probe, the receiver can determine some of the characteristics of the channel between the transmitting and receiving node.

('690 1:52-57.) The alleged problem with this technique was that the probes were predetermined. (*Id.* 1:57-62.) That is where the alleged invention comes in. The patent is directed to a "receiver determined probe," whereby the receiving node determines what the "form" of the probe will be.

The process begins with the receiving node sending a "probe request" to another node identifying parameters which define the "form" of the probe its wants to receive:

> The receiving node may generate a probe request that specifies a plurality of parameters to be used in such a "receiver determined" probe to generate a probe having the "form" specified by these parameters. Accordingly, the probe request specifies a plurality of parameters associated with the generation and transmission of a probe, including the content of a payload of the probe

(*Id.* 2:3-9) Although "form" is a plain English word, the inventors put it in quotes to signal that they would explain its meaning in the immediately subsequent sentence – the "form" of a probe relates to the "generation and transmission" of the probe. "[P]arameters associated with the generation and transmission of a probe" are parameters which "specif[y]" the form of the probe.

As the specification excerpt at 2:3-9 teaches, a "probe request" will always include at least "the content payload of the probe." However, there are a number of other "form" parameters that can be included in a probe request as well. These include the preamble type, the number of times to transmit the probe, and the transmit power of the probe. (*Id.* 2:9-16.) "Accordingly, the probe that is transmitted in response to the probe request will have a form dictated by the parameters specified in the probe request." (*Id.* 2:16-18.)

The remainder of the process is depicted in Fig. 4. In block 200 the probe receiver transmits the probe request to a "probe transmitter," which is the node that "will be transmitting the eventual probe(s) having a form that is dictated by the" parameters specified in the probe request. (*Id.* 6:17-22.) After the probe transmitter receives the probe request (block 201), it "uses the specified probe parameters to generate a probe having a form that complies with the specified parameters." (*Id.* FIG. 4 (block 202), 6:38-40.) In block 203, the probe transmitter transmits the probe to the probe receiver. In blocks 204 and 205, the probe receiver receives the probe and processes it to determine characteristics of the channel on which it was received.

B. Construction of '690 Patent Claim Terms

Claim Term	Entropic's Construction	Charter's Construction
"probe" (cls. 1,7, 9, 11)	Plain and ordinary meaning.	A "probe" is a packet transmitted to a network node which the node compares to a reference packet having a known form in order to determine characteristics of the channel on which the packet was transmitted.
"physical layer probe" (cl. 9)	Plain and ordinary meaning.	"Physical layer probe" means probe. Otherwise indefinite.

Entropic asserts that "probe" should be construed according to its plain and ordinary meaning, but it does not explain which of the many "plain meanings" of the word "probe" applies. Charter's construction, taken from the patent specification, *is* the plain meaning in the context of probes sent between nodes in a network. The DOCSIS specification confirms this.

Entropic takes issue with the term "reference packet" in the construction because that term is not in the specification. (EBr. at 18-19.) That is true—the specification instead refers to a "reference *probe*." ('690 1:55.) "Packet" is in the construction to avoid having the word "probe" in the construction of "probe" and because probes *are* packets. Both the patent and DOCSIS specifications relate to packet networks. (CEx. 4 at CHARTER_ENTROPIC00101891; '690 3:40-44.)

The DOCSIS specification also explains that a probe, by definition, is a physical layer signal: "A probe is a wideband physical-layer signal…" (CEx. 4 at CHARTER_ENTROPIC00101928.) The patent accordingly speaks only of generating physical layer ("PHY") packets. ('690 3:3-5, 3:40-64, 5:59) Thus, a "physical layer probe" is simply a probe. "It is true that 'interpretations that render some portion of the claim language superfluous are disfavored.' . . . The preference for giving meaning to all terms, however, is not an inflexible

rule that supersedes all other principles of claim construction." *SimpleAir, Inc. v. Sony Ericsson Mobile Commc'ns AB*, 820 F.3d 419, 429 (Fed. Cir. 2016).

Here, if "physical layer probe" does not mean "probe" then it is indefinite, as it would be impossible to know how it is different than a "probe" because probes *are* physical layer signals.

Claim Term	Entropic's Construction	Charter's Construction
"probe request" (cls. 1, 7, 8, 9, 11, 15, 16)	Plain and ordinary meaning.	A request sent by a first network node to a second network node which defines the form of a probe to be generated and transmitted by the second network node. The probe request specifies at least the content payload of the probe.

According to the specification, prior art probes were predefined. The alleged invention is the ability of a node to send a "probe request" to another node defining the form of the probe. As such, "probe request" could not possibly have had a plain and ordinary meaning in the context of the alleged invention. *The probe request is the invention*. And the specification explains exactly what this allegedly novel "probe request" is – it defines the form of the probe to be generated and transmitted by the node receiving the probe request, and includes at least the content payload of the probe. ('690, 2:3-9; *supra* at IV.A.) That is Charter's construction.

Entropic complains that Charter's construction is confusing because the sender of the probe request is designated the "first node" and the receiver of the probe request is designated the "second node" because, in the claims, those designations are reversed. (EBr. at 20.) If the Court finds this confusing, the construction is easily changed to reverse those designations.

Entropic places great reliance on its contention that Charter's construction renders some claim language redundant. For example, Entropic says the construction's requirement that the probe request define the form of the probe is redundant with claim limitations requiring that

parameters in the probe request dictate the form. (*Id.* at 19-20.) The two are not redundant – the "parameters" limitation specifies *the way* the probe request defines the form. Entropic further complains that the construction's requirement that the probe request specify the probe's content payload is already in claim 1 but not claim 9. That is true, and it is why Charter's construction is correct. The inventor's definition of his allegedly novel "probe request" must be in all the claims.

In any event, to whatever extent the inventor's definition of "probe request" makes that definition redundant with other claim language, the inventor's definition still governs: "[t]he preference for giving meaning to all terms [] is not an inflexible rule that supersedes all other principles of claim construction … [a]s we have explained, '[c]laims must always be read in light of the specification.'" *SimpleAir*, 820 F.3d at 429.

Finally, although Entropic complains that Charter's construction requires that the transmitter of the probe request be the node that receives the probe request (EBr. at 20), Charter's construction contains no such requirement.

Claim Term	Entropic's Construction	Charter's Construction
"generating the probe in accordance with the first plurality of parameters and the second plurality of parameters, wherein the probe has a form dictated by the first plurality of parameters" (cl. 1)	Plain and ordinary meaning.	Indefinite.
"wherein the probe is generated in accordance with the first plurality of parameters and in accordance with a second plurality of parameters determined by the second node" (cl. 9)	Plain and ordinary meaning.	Indefinite.
"the first plurality of probe parameters comprising a form for the probe including a	Plain and ordinary meaning.	Indefinite.

modulation profile for the probe" (cl. 9)		

Unlike the disclosure of the '690 Patent, wherein only the parameters sent in the probe request are used to generate and transmit a probe, claims 1 and 9 of the patent require that the probe transmitter separately determine a "plurality of parameters associated with the generation of the probe." ('690 13:46-48, 13:51-52, 14:19-21, 14:26-28.) Both claims also require that the probe actually be generated "in accordance with" both the plurality of parameters in the probe request (the "first plurality of parameters") and the plurality of parameters determined by the probe transmitter (the "second plurality of parameters"). (*Id.* 13:53-54, 14:25-28; Almeroth ¶83.)

However, claim 1 requires that the form of the probe be "dictated by the first plurality of parameters." ('690, 13:55-56.) Similarly, claim 9 requires that the "first plurality of probe parameters compris[e] a form for the probe." (*Id.*, 14:21-23.) Neither requirement makes any mention of the second plurality of parameters. Thus, the claims cover the form of the probe being determined only by the parameters in the probe request. This renders the claims indefinite. (Almeroth ¶84.) If the parameters determined by the probe transmitter are used to generate the probe, those parameters necessarily contribute to defining the form of the probe. The inventor said that form-specifying parameters ***are*** parameters "associated with the generation and transmission of a probe." ('690 2:3-9.) And even putting the patentee's statement aside, it is impossible to imagine a parameter used to generate a probe that does not relate to its form.

Entropic' s response, it says, "is a simple one… [n]ot all probe parameters specify a form," and parameters relating to generation of a probe may not relate to its form. (EBr. at 21.) Yet, Entropic does not explain how this "simple" proposition can possibly be true or what definition of "form" it is applying when it makes that allegation. And it certainly does not identify a single disclosed parameter that relates to generation – but not form – of a probe.

Instead, Entropic points to Fig. 5 and contends that these parameters all relate to generation of a probe. (*Id.* at 22.) Yet the specification explicitly states that these very same parameters relate to the form of the probe ("the probe request specifies *a plurality of parameters* for the probe *that will dictate the form of the probe* to be transmitted. *These parameters are discussed in more detail below with respect to Fig. 5*." ('690, 6:34-38 (emphasis added).)

Finally, Entropic says that a POSITA "would understand that the point of the probe request is for a node to generate a probe containing responsive information," that the parameters generated by the probe transmitter constitute that responsive information and are therefore included in the payload of the probe, and that the payload contents "do not necessarily relate to the form of the probe." (EBr. at 22.) Each and every one of these statements is demonstrably false: (i) the point of a probe request is *not* to receive a probe "containing responsive information." If the probe contains new information inserted by the probe transmitter, it cannot be used as a probe by the probe receiver to compare to a "reference probe"; (ii) for that reason, the specification says nothing about putting parameters into probe payloads; and (iii) even if the specification did disclose this, the specification is clear that payload content *does* relate to the form of the probe. ('690 2:3-9.)

V. The '362 Patent

A. The Specification of the '362 Patent (Charter TT 54-77)

The title of the '362 Patent is "Wideband Tuner Architecture." Prior art wideband tuners allegedly required expensive analog to digital converters ("ADCs") because of the wide bandwidth of the signal that had to be digitized. The purported invention is said to reduce the bandwidth of the signal to be digitized so that less expensive ADCs can be used. ('362 2:20-27.)

Fig. 2 depicts a wideband receiver which allegedly solves this problem. The ADCs in question are labeled 218 and 228 in the middle of the figure, and sit between a "radio front end" 210 on the left and a "digital front end" 230 on the right. (*Id.* 5:13, 4:18-19.) The incoming signal

is received into the radio front end on the left, and is described as the "RF Input" or "RF signal." (*Id.* 1:48-50, 4:27-28, Fig. 2.) As Entropic says, the RF signal is an analog signal. (EBr. at 23.)

In operation, the radio front end is said to somehow capture a "swath" of channels from the RF signal that includes the "desired" channels (channels the customer is interested in) and undesired channels. (*Id.* 1:27-31.) That swath has a bandwidth designated BW_1. (*Id.* 1:67-2:2, 4:19-22, Fig. 2.) BW_1 can be as wide as "800 MHz or higher," which would require the expensive analog to digital converters. (*Id.* 2:20-23.) That is the bandwidth that must be reduced.

The analog swath having bandwidth BW_1 is provided as input to mixers 211 and 221. (*Id.* 4:37-39.) Together, these mixers constitute a "complex mixer module for down-shifting the multiple RF channels and transforming them to an in-phase signal and a quadrature signal in the baseband or low intermediate frequency (IF) band." (*Id.* 2:45-49, 4:40-53.) "The system further includes a wideband analog-to-digital converter module that digitizes the in-phase and quadrature signals." (*Id.* 2:49-51.) These are the ADCs 218 and 228 in Fig. 2. The signal supplied to the ADCs is "one half of the RF signal bandwidth BW1 thanks to the complex down-mixer architecture" 211/221 (*Id.* 5:15-19, Fig. 2.) That is the reduction in bandwidth – achieved by mixers 211/221 – that allows the less expensive analog to digital converters to be used.

The output from the ADCs are "digital signals." (*Id.* 5:28-31.) These digital signals are supplied to a different "bank of N complex mixers 250," each of which "receives the digital signals… from ADCs 218 and 228 to extract a different one of the desired channels and frequency-shifts the extracted signals to the baseband frequency." (*Id.* 5:49-52.) Thus, the mixers 250 operate only on digital signals, and frequency shift *only the desired channels*.

B. Construction of '362 Patent Claim Terms

Claim Term	Entropic's Construction	Charter's Construction
"downconverting . . . a plurality of frequencies" (cl. 11)	Plain and ordinary meaning.	Downconverting a plurality of frequencies of an analog radio frequency (RF) signal.
order of the steps (cl. 11)	Plain and ordinary meaning.	Claimed steps must be performed in the order recited in the claim.

"Courts apply a two-part test to determine whether a particular order of steps is required: 'First, we look to the claim language to determine if, as a matter of logic or grammar, they must be performed in the order written,' and '[i]f not, we next look to the rest of the specification to determine whether it directly or implicitly requires such a narrow construction.'" *Red Rock Analytics, LLC v. Samsung Electronics Co., Ltd.*, No. 2:17-CV-101-RWS-RSP, 2018 WL 1806859, at *4 (E.D. Tex. Apr. 16, 2018) (*citing Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369–70 (Fed. Cir. 2003)). Because both parts of the two-part *Altiris* test are satisfied here, the steps of the claim 11 must be performed in the order recited. And in particular, the step of "downconverting ... a plurality of frequencies" must occur on the analog signal before the subsequent "digitizing" step.

First, the language of claim 11 itself dictates that the steps be performed in the order written. For example, the claim refers to frequencies which exist before analog-to-digital conversion as simply "frequencies." In contrast, the claim refers to frequencies after digitization as "*digitized* … frequencies." Thus, the first step of "downconverting" is said to be performed on a "plurality of frequencies." ('362 12:39-42.) Similarly, the subsequent step of analog to digital conversion is said to be performed on the "plurality of frequencies." (*Id.* 12:43-45.) As the name itself demands, the function of "*analog* to digital conversion" is performed on an *analog* input to the ADC. After the analog to digital conversion is completed, however, the claim then refers to the frequencies as the "*digitized* plurality of frequencies." (*Id.* 12:50.) "Downconverting" must

therefore operate on the analog signal, before the subsequently identified step of digitization. *Oak Tech., Inc v. Int'l Trade Comm'n*, 248 F.3d 1316, 1325 (Fed. Cir. 2001) (claim requiring that "assembled data" be "processed by the 'error correction circuitry,'" after which the data is referred to as "corrected assembled data," held to "explicitly describe[] a sequential process.")

The below chart summaries why all claim steps must be performed in the order recited. We insert a lettered designation to each claim limitation in blue for ease of reference:

'362 Patent Claim 11	**Reasons Why Claimed Order Is Required**
11. A method comprising: in a wideband receiver system:	
(a) downconverting, by a mixer module of said wideband receiver system, a plurality of frequencies that comprises a plurality of desired television channels and a plurality of undesired television channels;	As discussed above, this "downconverting" is performed on a "plurality of frequencies," not a "digitized plurality of frequencies." This step must therefore be performed before the subsequent step of "digitizing."
(b) digitizing, by a wideband analog-to-digital converter (ADC) module of said wideband receiver system, said plurality of frequencies comprising said plurality of desired television channels and said plurality of undesired television channels;	"Digitizing" is also performed on said "plurality of frequencies" (obviously, an "*analog* to digital converter" performs its function on an *analog* signal). In contrast, the subsequent step (c) is performed on said "*digitized* plurality of frequencies." Thus, step (b) must be performed before step (c).
(c) selecting, by digital circuitry of said wideband receiver system, said plurality of desired television channels from said digitized plurality of frequencies; and	"Selecting" is performed on said "*digitized* plurality of frequencies." This step (c) must therefore be performed after the "digitizing" in step (b). Moreover, subsequent step (d) requires outputting "said selected" channels. This step (c) is the step that does the "selecting." This step must therefore be performed before step (d).
(d) outputting, by said digital circuitry of said wideband receiver system, said selected plurality of television channels to a demodulator as a digital datastream.	Step (d) requires outputting "said selected" channels. This step must therefore be performed after the "selecting" step (c).

Second, even if the structure of the claim did not mandate the order of the steps (it does), the specification "directly or implicitly requires" that the claims be performed in order. The "complex mixer module" 211/221 in Fig. 2 – which downconverts the *analog* signal – is the

component which performs the allegedly inventive halving of the bandwidth BW_1. *That* is the "mixer module" referred to in the claimed downconverting step. The specification's emphasis on the importance of the *analog* mixer module "directly or implicitly requires" that construction.

Finally, claim 11 is written to track the order in which the steps are performed in the specification. As the Federal Circuit has stated with respect to part two of the *Altiris* test: "though we have repeatedly held that 'it is ... not enough that the only embodiments, or all of the embodiments, contain a particular limitation to limit a claim term beyond its ordinary meaning,' . . . here, the only embodiments are consistent with the plain meaning of the claim in the order that is written, and we thus decline to construe the claim as allowing deviation from that order." *Hytera Commc'ns Co. Ltd. v. Motorola Solutions, Inc.*, 841 F. App'x. 210, 219 (Fed. Cir. 2021).

Relying on Fig. 4, Entropic contends that the specification discloses an alternative embodiment where the claimed "downcoverting" occurs after the analog-to-digital conversion. (EBr. at 25-26.) This is not so. The Radio Front End and Digital Front End in Fig. 4 are said to perform the same functions described above with respect to Fig. 2. ('362 7:29-32.) Digital mixers 432 in Fig. 4 correspond to digital mixers 250 in Fig 2. Although the digital mixers also do downconversion, they downconvert *only the desired channels*. (*Id.* 5:49-52.) In contrast, claim 11 expressly requires downconversion of both desired and undesired channels. (*Id.* 12:39-42.) The only disclosed component which does that is the analog mixer module 211/221.

VI. The '682 Patent

A. The Specification of the '682 Patent (Charter TT 121-146)

As Entropic says, the '682 Patent relates to assigning cable modems to service groups. (EBr. at 5.) Once these assignments are made, the CMTS communicates with all cable modems in the same service group using the same communications parameters. ('682 5:40-46.)

The CMTS determines how to communicate with the cable modems in each service group by using a "composite worst-case SNR profile" for that service group. (*Id.* 4:9-20.) This means that for every subcarrier, the composite worst-case SNR profile reflects the worst case SNR for that subcarrier among the CMs in that particular service group. (*Id.* 5:40-46.) By accommodating the "worst case" CM at every subcarrier, the CMTS can assure that all of the CMs in a service group can receive communications at all of the subcarriers. (*Id.* 5:46-6:2.) Dr. Almeroth provides further details of the specification's disclosure. (Almeroth ¶¶85-92.)

B. Construction of '682 Patent Claim Terms

Claim Term	Entropic's Construction	Charter's Construction
"a composite SNR-related metric based at least in part on a worst-case SNR profile of said SNR-related metrics" (cl. 1)	Plain and ordinary meaning.	Indefinite.

Claim 1 of the '682 Patent does not call for use of a "composite worst-case SNR profile" in order to determine how to communicate with the CMs in a service group. Instead, it requires the CMTS to generate a so-called "composite SNR-related metric" for each service group "based at least in part on a worst-case SNR profile" of a service group.[4] There is nothing about this limitation that finds any support in the specification. The specification does not disclose a "composite SNR-related metric," it does not disclose a "worst-case SNR profile" that is not a "composite" profile, and it does not disclose basing the former on the latter. Because these two terms do not have a plain meaning, a POSITA would necessarily look to the specification for their meanings. But there, the only thing they would find to support a construction of either term is the disclosed "composite worst-case SNR profile" for a service group. (*Id.* ¶¶94-95.) So the claim

[4] The claim actually says "said one of said service groups," a term with no antecedent basis. We separately address the indefiniteness of the "said one…" limitations below.

is indefinite. There is no way to know how the "composite SNR-related metric" can be "based *at least in part on*" the "worst-case SNR profile" if the two refer to the same thing. (*Id.* ¶96.)

Entropic alleges that the two terms do not mean the same thing. Yet, while Entropic insists that the specification discloses examples of a "worst-case SNR profile," every cited example it provides is to a "*composite* worst-case SNR profile." (EBr. at 27.) Thus, although Entropic's position is unclear, it seems to agree that "worst-case SNR profile" and "composite worst-case SNR profile" are synonymous.

The disagreement seems to be with the term "composite SNR-related metric." Although Entropic agrees that a "composite SNR-related metric" is the composite SNR profile for the service group (EBr. at 5), Entropic believes that it need not "inherently involve *worst case* SNR." (Kramer ¶168.) The only reason the specification discloses a "composite *worst-case* SNR profile," Dr. Kramer says, is "that is part of the disclosed invention." (*Id.* ¶169.) In isolation, however, Dr. Kramer contends that a "composite SNR-related metric" could refer instead to a composite "***best-case*** SNR" profile. (*Id.*) Even if true, that is irrelevant. Claim terms are to be construed in the context of the specification, not in isolation. Moreover, Entropic does not explain how one would even generate a "composite **best-case** SNR profile" based at least on part on a "**worst-case** SNR profile." Certainly the specification does not disclose any of this.

In view of the specification, "composite SNR-related metric" *cannot* mean a "composite **best-case** SNR profile." It can only refer to the "worst-case." And the claim is therefore indefinite, as there is no difference between "composite SNR-related metric" and "worst-case SNR profile."

Claim Term	Entropic's Construction	Charter's Construction
"service group[s]" (cl. 1)	Plain and ordinary meaning.	A "service group" is the complete set of downstream and upstream channels within a single CMTS that a single cable modem could

		potentially receive or transmit on.

Claim 1 of the '682 Patent requires assigning cable modems to service groups. ('682 8:7-9.) In the specification, the cable modems are part of a "cable/DOCSIS network." (*Id.* 2:56-60.) The DOCSIS specification itself provides the plain meaning definition of a "cable modem service group" in the cable television industry (a definition Charter identified in the P.R. 4-3 statement but which Entropic entirely ignores in its brief):

> **Cable Modem Service Group** In the HFC plant topology, the complete set of downstream and upstream channels within a single CMTS that a single Cable Modem could potentially receive or transmit on. In most HFC deployments, a CM-SG corresponds to a single Fiber Node. Usually, a CM-SG serves multiple CMs.

(CEx. 5, at CHARTER_ENTROPIC00101160.) Although it does not offer or provide any support for any alternative "plain meaning" of "service group," Entropic criticizes this published, well-accepted cable industry definition on the grounds that it is allegedly (i) describing only a group of channels, not a group of cable modems; and (ii) inconsistent with the claims and specification. (EBr. at 28-29.) Entropic is wrong on both counts.

First, the definition is for a "*cable modem"* service group, not a "channel" service group. The definition means that all of the cable modems which can potentially receive or transmit on the same upstream and downstream channels are part of the same service group. Entropic's misunderstanding of the plain meaning is not a basis to reject it.

Second, the definition is not inconsistent with the claims or specification. Although Entropic says the definition is limited to one cable modem, the definition itself says otherwise. ("Usually, a CM-SG serves multiple CMs.") Entropic's contention that the plain meaning excludes disclosed embodiments is also false. According to Entropic, the alleged invention can facilitate communication with upstream channels, downstream channels or both. (EBr. at 29.) Although that is factually untrue, it is irrelevant here. The fact that cable modems in the same

service group can potentially transmit on the same upstream or downstream channels has nothing to do with which of those channels the alleged invention facilitates better communications on.

Claim Term	Entropic's Construction	Charter's Construction
"[communicating with / corresponding to] said one of said plurality of service groups" (cl. 1)	Plain and ordinary meaning.	Indefinite.

'682 Claim 1 requires "assigning … among a plurality of service groups" ('682 8:7-8) and "generating, by said CMTS *for each one* of said plurality of service groups…" (*Id.* 8:10-11.) Thereafter, there are a number of steps for "communicating with" or "corresponding to" "said one of said plurality of service groups…" (*Id.* 8:13-14, 8:16-17, 8:21-22.) There is no antecedent basis for "said one of said plurality of service groups," and there is no way to know which one service group among the "plurality of service groups" the "communicating" and "corresponding" steps should be performed on. The claim is therefore indefinite.

Dr. Kramer contends that communicating with "said one of said plurality of service groups" should be read to mean communicating with "as many service groups in the plurality of service groups as preferred." (Kramer ¶177.) In other words, he rewrites "said one of said plurality of service groups" to instead say "at least one of said plurality of service groups." He gives no explanation for why he chose to rewrite the limitation that way, instead of rewriting it to say "said *each* one of said plurality of service groups," which would require the steps to be performed on *all* service groups. In any event, that is irrelevant, as Courts are not entitled to rewrite claims, either to sustain their validity or otherwise. *Lucent Technologies, Inc. v. Gateway, Inc.*, 525 F.3d 1200, 1215 (Fed. Cir. 2008).

Respectfully submitted,

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/s/ Elizabeth Long

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CERTIFICATE OF SERVICE

The undersigned certified that on May 23, 2023, all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document through the Court's CM/ECF system pursuant to Local Rule 5(a)(3).

/s/ Elizabeth Long
Elizabeth Long